Using ArcGIS Collector App for Boles Damage Inspection

Boles Incident
Weed, CA
September 16-21,
2014

DINS Objectives

- Preliminary, rapid damage inspection
- Focus on residential properties, out-buildings, and commercial buildings
- Used draft CAL FIRE damage inspection form
- Local vendor (FireWhat) offered to assist at no cost
- Field tested ArcGIS Collector App to collect data for the first time

ArcGIS Collector Capabilities

- Collect vector data (only points for DINS)
- Cache maps and data when offline
- Immediately synchronize to cloud when online
- Use map to orient and find way around area
- Improve data using field domains and visually locating damaged structures in imagery
- Point/photo data available immediately in ArcGIS Online when connectivity is available
- Configure App to incident needs

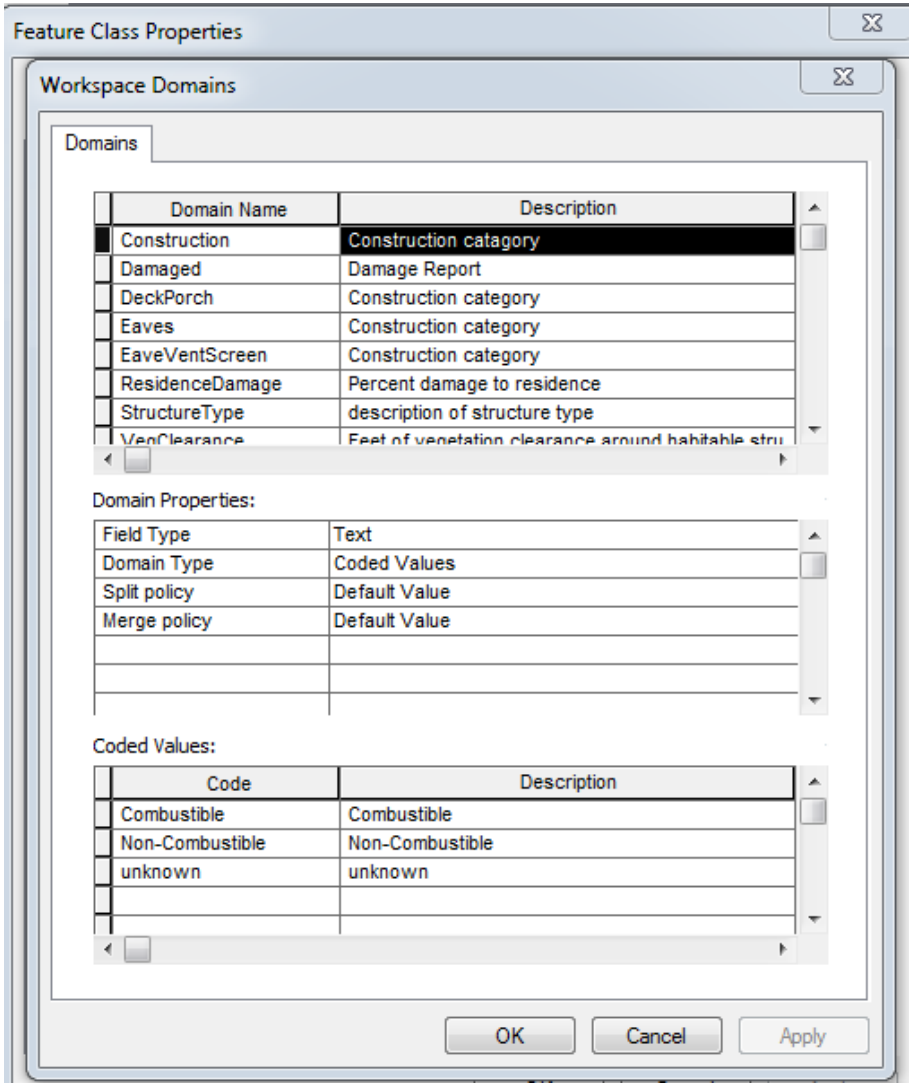
DINS Teams

- 5 DINS teams formed to collect data
- 2 person teams, one FOBS & a SFM Fire and Life Safety Inspector
- Each team assigned block of unique numbers to identify inspected parcels
- Damage area divided into 5 geographic areas, one for each team
- Extra FOBS staged to escort other officials to evaluate infrastructure and other assets
- Extra FOBS team did rapid windshield survey
- iPad and iPhone issued to each team (phone used as WiFi hotspot for iPads)

Data & Map Prep

- FireWhat and CAL FIRE GIS staff built File GDB with attributes & field domains from CAL FIRE DINS Form
- Developed map in ArcGIS Online
- Layers in map: DINS GDB, fire perimeter, DINS Team Area polygons
- World high-res imagery background with roads
- Unique symbology developed for DINS layer

Domain creation for AGOL app

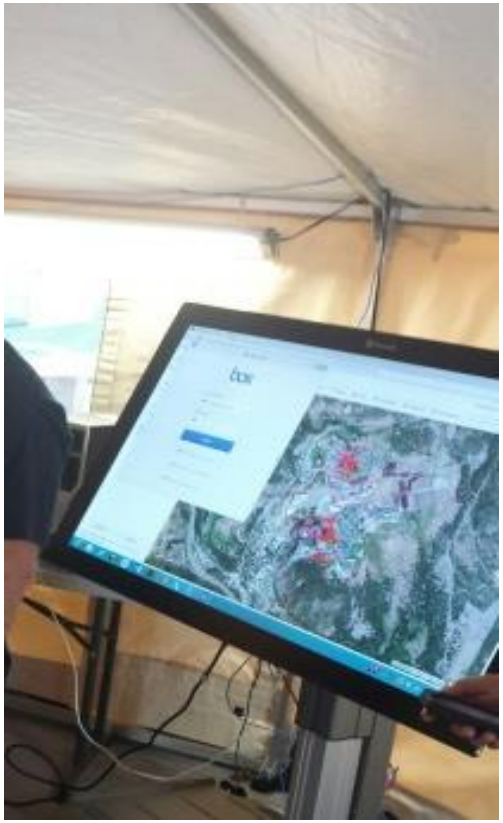


DINS Team Training

- Collect new damage point
- Edit points: moving to exact structure using imagery in App
- Capture photos
- Delete incorrect points/photos
- Provide hard copy maps with team survey areas, parcels, street names, addresses and imagery background

Collecting Data

- After training, DINS teams deployed for data collection
- Flagging used to mark inspected parcels
- DINS Lead and GISS' monitored progress at DINS ICP on oversized, touch-screen monitor
- FireWhat staff assisted DINS teams as needed



Daily Data Collection Effort

Day 1

- Collector App worked well
- Day 1 - good break-in for DINS teams

Day 2

- Issues identified on Day 1 were addressed in training
- Added 2 new fields to DINS table to better identify features
- Reassessed entire damaged area
- Only took 1 photo/structure
- Used 6 DINS Teams
- Collected 100% of damage data on over 100 parcels w-in 3 hours

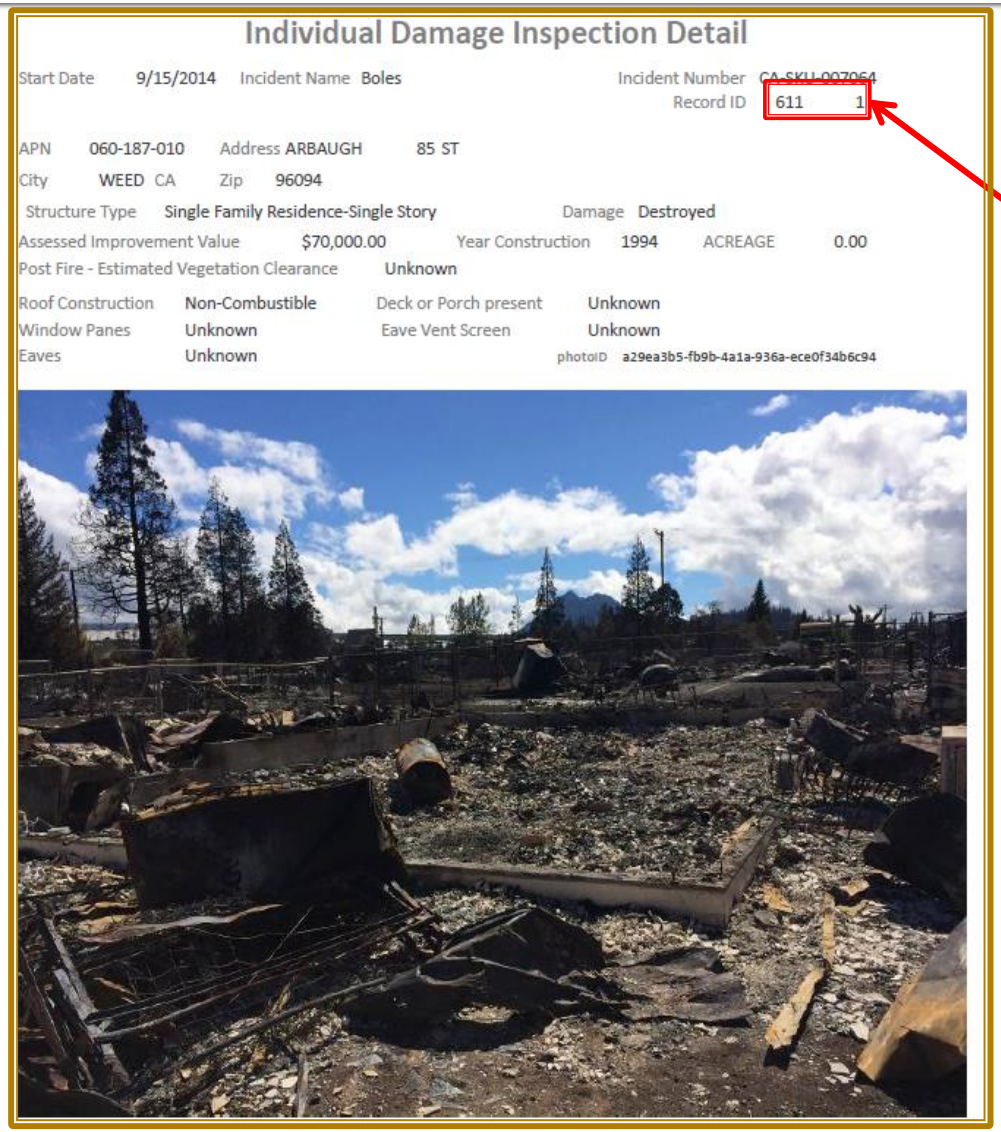
Downloading & Massaging Data

- Data collected by App can be downloaded as shapefile, .csv or file GDB from ArcGIS Online
- Photos are stored as attachments in DINS file GDB
- Due to bandwidth issues (GDB size ~1 GB), only shapefile was downloaded
- ESRI and FireWhat staff extracted photos and provided to DINS Lead & GISS
- Field domains were coded numeric values
  - Necessitated calculating text values for many attributes

Creating Final DINS Report

- Report was created in an Access database
- DINS GIS and parcel data tables spatially joined in ArcGIS and imported into Access database
  - APN, owner name, address, improvement value and year built taken from parcel table
  - All other attributes in report are from DINS table
- Each page in report pulls data from table's attributes
- Photos manually inserted into report
- GIS maps

Sample Page in Report



Individual Damage Inspection Detail

Start Date 9/15/2014 Incident Name Boles Incident Number CA-SKU-007064

Record ID 611 1

APN 060-187-010 Address ARBAUGH 85 ST

City WEED CA Zip 96094

Structure Type Single Family Residence-Single Story Damage Destroyed

Assessed Improvement Value $70,000.00 Year Construction 1994 ACREAGE 0.00

Post Fire - Estimated Vegetation Clearance Unknown

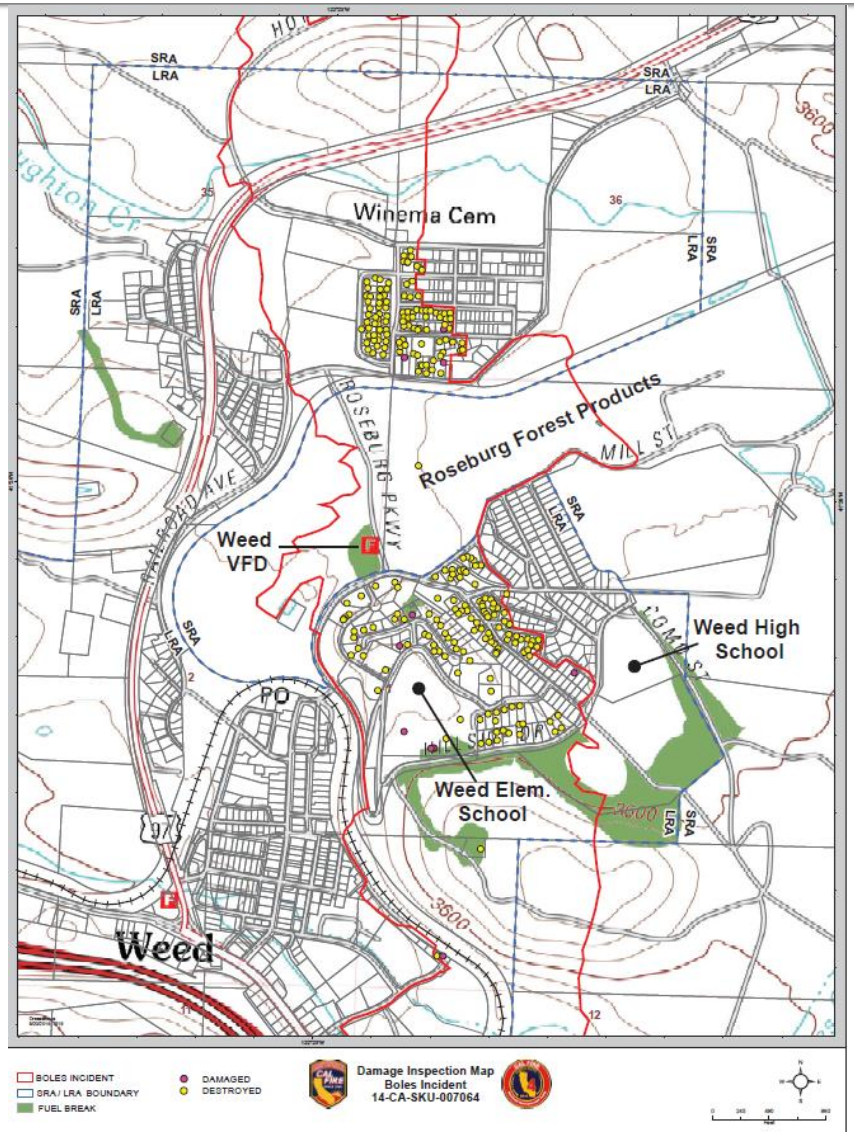
Roof Construction Non-Combustible Deck or Porch present Unknown

Window Panes Unknown Eave Vent Screen Unknown

Eaves Unknown photoID a29ea3b5-fb9b-4a1a-936a-ece0f34b6c94

- One structure per page in report
- Unique Identifier – Combines attributes of:
  - "Inspection" (1/parcel, "611")
  - "ExposureNu" (1/structure on each parcel, "1")
- Other attributes populate remainder of report
- Photos manually added to each page

Report map example



Final Damage Statistics

	Commercial Structures	Residences	Outbuildings
Destroyed	10	157	72
Damaged	2	5	2
Total Affected	12	162	74

- The fire consumed 516 acres
  - 229 acres were in State Responsibility Area
  - 287 acres in Local Responsibility Area (city of Weed).

Suggested Enhancements to Collector App

- Add more options downloading App data:
  - Vector feature classes only
  - Photos only w-option to select which photos to download
- Add capability to extract and name photos based on one or more attributes in the table
- Add capability to enable/disable editing on each layer in map
- Add capability to make layers selectable/unselectable in map
- Improve symbol selection in AGOL/Collector (use ArcGIS symbols)
- Streamline the process of adjusting the settings & publishing AGOL/Collector maps